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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,189	07/13/2001	Guang-Jong Jason Wei	163.1438US01	3059

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EXAMINER	
PAK, JOHN D	
ART UNIT	**PAPER NUMBER**
1616	

DATE MAILED: 02/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/905,189	WEI ET AL.	
	Examiner	Art Unit	
	JOHN PAK	1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,11,12,15-20,24-33 and 35-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11,12,15-20,24-33 and 35-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claims 1-8, 11-12, 15-20, 24-33 and 35-47 are pending in this application. These claims will presently be examined to the extent that they read on the elected subject matter of record – i.e. sebacic acid esters and adipic acid esters as the single disclosed species of the mono- or diester dicarboxylate.

Applicant is advised to check the nomenclature of the substance fully recited on line 3 of claim 19. It appears that the brackets may be not be properly placed in position.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 11-12, 15-20, 24-25 and 29-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Carr et al. (WO 95/34537).

Carr et al. explicitly teach an aqueous disinfectant solution that contains a monoester of a dicarboxylate such as a mono-C_{1-4} alkyl ester of adipic acid (when x =

4), a peracid thereof, and hydrogen peroxide. See p. 3, lines 7-20; p. 4, lines 7-17 and 34-37; p. 10, lines 17-38. The monoester is present from about 0.05 to 10%, including 1 to 9% by weight (p. 4, lines 34-37). The hydrogen peroxide is present from 0.5 to 15%, including 1 to 10% by weight (p. 5, lines 1-6). Stabilizing agent such as EDTA and HEDP (hydroxyethylidenediphosphonic acid) may be present at 0.25 to 1.5 wt% (p. 5, lines 13-28). Choice of organic sulfonic acid such as methane sulfonic acid to provide acidic pH to the aqueous disinfectant solution is disclosed (p. 8, line 38). A method of making the aqueous solution is disclosed wherein an aqueous solution of a mono-C_{1-4} alkyl ester of a dicarboxylate such as adipic acid (x = 4) is contacted with a peroxide such as hydrogen peroxide under pH less than 4 obtained by using an acid such as methane sulfonic acid (p. 8, lines 11-38; p. 9, lines 31-33). Equilibrium may be obtained after 1 to 30 days (p. 9, lines 29-30). Dilution of the equilibrated solution is disclosed (p. 10, lines 4-10).

The claims are thereby anticipated. The claim feature of "free of added strong inorganic acid" is met by Carr et al. because organic acids such as methane sulfonic acid are explicitly disclosed. The claim feature of 2 wt% mono-C_{1-4} alkyl ester of adipic acid is taught by Carr et al. from their disclosure of 1 to 9 wt% mono-C_{1-4} alkyl ester of adipic acid. 2 wt% is clearly envisaged by the 1 to 9 wt% disclosure. The claim feature of 2 wt% or 1 to 4 wt% hydrogen peroxide is taught by Carr's 1 to 10 wt% hydrogen peroxide disclosure. 2 wt% is clearly envisaged by the 1 to 10 wt% disclosure. The

claimed weight percentage feature for water is also taught by Carr et al. from the weight percentages disclosed for all other composition components. Even 95 wt% water or more is clearly taught since the combined amounts of the necessary composition components are less than 5 wt% at the low end of Carr's range. Removing a portion of the retained hydrogen peroxide and mono-ester dicarboxylate from the vessel for diluting is taught since diluting is taught by Carr et al. "A portion" includes some or all of the vessel contents. Batch-wise adding of reaction ingredients is clearly taught by Carr et al. (p. 8, lines 11-33; see Example 1 on pages 11-13). Batch-wise removing a portion for diluting is also taught (p. 10, lines 4-10).

As for the claim-recited antimicrobial feature, it is the Examiner's position that such activity would necessarily have been present in the disinfectant solution disclosed by Carr et al. because the presence of the same exact ingredients at the same percentages would necessarily have provided the prior art solution with the same activity.

The claims must therefore be rejected under 35 USC 102(b) as being anticipated by Carr et al.

Claims 1-8, 11-12, 15-20, 24-33 and 35-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carr et al. (WO 95/34537) in view of Hei et al. (US 6,593,283) and Chemical Abstracts 134:97683.

Teachings of Carr et al. were discussed above in the preceding ground of rejection and that discussion is incorporated herein by reference. Additionally, the following further teachings are noted for this ground of rejection. Carr et al. further teach that their disinfectant composition can be employed to treat a wide range of substrates such as hard surfaces such as ceramics or glass, contaminated articles intended for reuse in the food processing, catering, domestic or hospital environments, (p. 11, lines 1-18). Disinfection of process waters in food processing industries such as brewing, wine making and alcohol distilling industries is disclosed (p. 10, lines 25-29).

Hei et al. disclose an antimicrobial composition that contains water (as "diluting solvent"), diesters such as dimethyl dimethyl adipate, diethyl adipate, dibutyl adipate (as "antimicrobially active solvent"), and hydrogen peroxide (as "additional antimicrobial agent"). See column 2, lines 25-52; column 3, line 50 to column 8, line 40; claims 10, 14, 27, 28-37. Greater than 1-log order reduction in the population of bacteria or spores of *Bacillus cereus* or *Chaetomium funicola* within 10 seconds at 60° C is disclosed (column 3, lines 10-42; column 3, line 50 to column 4, line 33). Use in a wide range of applications such as hard surface cleaners, cold aseptic packaging treatments, food, food equipment, bottles, and tanks/pumps/lines is disclosed (column 12, line 16 to column 13, line 13). Although the "antimicrobially active solvent" component, which encompasses diesters of adipic ester, is disclosed to be present in an amount that is at least 5 wt% (column 7, lines 50-52), but Hei's composition is clearly intended to be

diluted before use (column 11, lines 12-30). The diluted use-composition is taught to contain 0.01 to 50 wt% "antimicrobially active solvent" (column 11, lines 22-24).

Chemical Abstracts 134:97683 is cited to establish that peracetic acid is known to have activity against *Chaetomium funicola* and *Arthrinium sacchari*.

It is noted that claims 1-5, 11-12, 15-20, 24-25 and 29-32 were already rejected over Carr et al. under section 102. Therefore, with respect to those claims, there is no patentable difference between the claims and Carr et al. Alternatively, to the extent that applicant would argue lack of explicit teaching for the claimed features, "free of added strong inorganic acid," composition component percentages, proportions or antimicrobial activity, the following comments are noted. The claim feature, "free of added strong inorganic acid" is amply suggested by Carr et al. because organic acids such as methane sulfonic acid are explicitly disclosed. The claim feature, 2 wt% mono-C_{1-4} alkyl ester of adipic acid, is amply suggested by Carr et al. from their disclosure of 1 to 9 wt% mono-C_{1-4} alkyl ester of adipic acid. 2 wt% is clearly within the 1 to 9 wt% disclosure. The claim feature, 2 wt% or 1 to 4 wt% hydrogen peroxide, is taught by Carr's 1 to 10 wt% hydrogen peroxide disclosure. 2 wt% is clearly within the 1 to 10 wt% disclosure. The claimed weight percentage feature for water is also suggested by Carr et al. from the weight percentages disclosed for all other composition components. Even 95 wt% water or more is clearly taught since the combined amounts of the necessary composition components are less than 5 wt% at the low end of Carr's range.

As for the claim-recited antimicrobial feature, it is the Examiner's position that such activity would necessarily have been present in the disinfectant solution disclosed by Carr et al. because the presence of the same exact ingredients at the same percentages would necessarily have provided the prior art solution with the same activity. Additionally, similar solutions containing diesters of adipic acid + hydrogen peroxide are also shown to possess the same type of activity against *Bacillus cereus* and *Chaetomium funicola* (Hei et al.). Further, peracetic acid is known to possess activity against *Arthrinium sacchari*. Therefore, one of ordinary skill in the art would have recognized that solutions that contain known antimicrobially active substances such as percarboxylic acids (from monoester of adipic acid + hydrogen peroxide), hydrogen peroxide per se, and/or mixture of diester of adipic acid + hydrogen peroxide, would have been expected to possess similar activity against the same microorganisms.

The motivation to add or utilize diesters of adipic acid or diesters of another dicarboxylic acid is provided by Hei's teachings, wherein such diesters are taught as "antimicrobially-active solvents." Adjustment of the concentration amounts to that of the claimed amounts is fairly suggested by the dilution-for-use teachings of Carr et al. and Hei et al. The various substrates to be disinfected and cold aseptic bottling of food or beverages are suggested by the teachings of broad disinfecting use taught by Carr et al. and the same specific teachings by Carr et al. for the similarly structured mixtures of diesters of adipic acid + hydrogen peroxide.

Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly disclosed or suggested by the teachings of the cited references.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to JOHN PAK whose telephone number is **(571)272-0620.** The Examiner can normally be reached on Monday to Friday from 8 AM to 4:30 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's SPE, Gary Kunz, can be reached on **(571)272-0887**.

The fax phone number for the organization where this application or proceeding is assigned is **(571)273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JOHN PAK
PRIMARY EXAMINER
GROUP 1600